

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SG2004/000093

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. ⁷: C12Q 1/68, 1/66

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
AS BELOW

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
AS BELOW

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPIDS, CAPLUS, MEDLINE ; Keywords ; pyrophosphate, nucleic, DNA, polymerase, detect, luciferase.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO, A, 1998/013523, (PYROSEQUENCING AB) 2 April 1998. (See particularly p. 3 line 7 - p. 6, line 20 and claims 1, 10)	1 - 22
X	WO, A, 1998/028440, (PYROSEQUENCING AB) 2 July 1998 (See particularly p. 3 line 5 - p. 6, line 12 and claims 1, 16 and 17)	1 - 22
X	US, A, 4971903, (EDWARD HYMAN) 20 November 1990 (see particularly the Example and claims 1 - 4)	1 - 22
X	EP, A, 630974 (EASTMAN KODAK COMPANY) 28 December 1994 (see particularly Example and claims 1 - 10)	1 - 22

Further documents are listed in the continuation of Box C

See patent family annex

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

24 May 2004

Date of mailing of the international search report

- 3 JUN 2004

Name and mailing address of the ISA/AU

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO, A2, 2002/064830 (CAMBRIDGE UNIVERSITY TECHNICAL SERVICES) 22 August 2002. (see particularly Example 2 and claims 1 - 17)	1 - 22
X	WO, A, 2000/040750 (AMERSHAM PHARMACIA BIOTECH AB) 13 July 2000, (see particularly p. 2 line 32 - p. 4 line 2, Example 1 and claims 1 - 7)	1 - 22
X	WO, A, 1998/055653 (NEXSTAR PHARMACEUTICALS, INC.) 10 December 1998. (see particularly p. 7 line 14 - p. 9 line 24, Examples and claims 1, 23 - 25, 34 - 39)	1 - 22
X	WO, A, 1992/016654 (UNIVERSITE DE REIMS CHAMPAGNE-ARDENNE) 1 October 1992 (see examples and claims)	1 - 22
P,X	US ,A1 2003/0082583 (ARJANG HASSIBI ET. AL.) 1 May 2003.(see particularly claims 1 - 35)	1 - 19
X	RONAGHI, M., et. al. 'Real-Time DNA Sequencing Using Detection of Pyrophosphate Release' Analytical Biochemistry (1996) 242:84-9 (see particularly Abstract and Figure 1)	1 - 22
X	NYRÉN, P., et. al. 'Solid Phase DNA Minisequencing by an Enzymatic Luminometric Inorganic Pyrophosphate Detection Assay' Analytical Biochemistry (1993) 208:171-5. (See particularly Abstract and Figure 1)	1 - 22
X	ALDERBORN, A., et. al. 'Determination of Single-Nucleotide Polymorphisms by Real-time Pyrophosphate DNA Sequencing' Genome Research (2000) 10:1249-58 (see particularly Methods)	1 - 22
X	RONAGHI, m., et. al. 'A Sequencing Method Based on Real-Time Pyrophosphate' Science (1998) 281:363-5 (see particularly Fig. 1)	1 - 22
X	IMAMURA, O. et. al. 'Simple and Rapid Bioluminescent Detection for Allele Specific PCR of <i>E. COLI</i> O 157:H7' Bioluminescence & Chemiluminescence: Progress & Current Applications, [Proceedings of the Symposium on Bioluminescence and Chemiluminescence],12th, Cambridge, United Kingdom, Apr. 5-9, 2002 (2002), 395-398.	1 - 22
X	NYRÉN, P., et. al. 'Detection of Single-Base Changes Using a Bioluminometric Primer Extension Assay' Analytical Biochemistry (1997) 244:367-73. (see particularly Abstract and Fig. 1)	1 - 22
X	NYGREN, M., et. al. 'Quantification of HIV-1 Using Multiple Quantitative Polymerase Chain Reaction Standards and Bioluminometric Detection' Analytical Biochemistry (2001) 288:28-38. (see particularly	1 - 22

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PCT/SG2004/000093

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: **20 - 22 (partially)**
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
The claimed kits have been searched only to the extent that they are being used in the method of the invention.

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/SG2004/000093

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report			Patent Family Member			
WO 9813523	AU 43918/97		EP 0932700		US 6210891	
WO 9828440	AU 53311/98		EP 0946752		US 6258568	
	US 2003104372		WO 02068684			
US 4971903	AU 33548/89		WO 8909283			
EP 0630974	JP 7059600					
WO 02064830	CA 2440698		EP 1360330			
WO 0040750	AU 19838/00		AU 35370/01		AU 44105/01	
	CA 2357775		CA 2395159		EP 1141401	
	EP 1239962		EP 1242186		US 2003143114	
	US 2003146155		WO 0146465		WO 0147638	
WO 9855653	AU 78136/98					
WO 9216654	AU 16460/92		FR 2674254			
US 2003082583	EP 1415004		WO 03087388			

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX